

the single derivatives of the hydrocarbons, such as the halogen, nitro, amido, &c. The third part is devoted to the study of the poly-compounds. The sugars are here dealt with, and are very fully given. On p. 265 there is a very useful diagram showing schematically the sugar syntheses. The fourth part treats of heterocyclic compounds.

The theoretical introductions at the commencement of the subsections are succinct, and give one an idea of the particular class of substance in a few sentences. A little more space might have been given to the quinones. Under this heading we only find one and a half pages, most of which is devoted to benzoquinone. There are, indeed, other references to quinones in the book, but these do not deal with the modes of preparation.

The compilation of a book such as this requires an immense amount of work, and we think, taking it as a whole, although there are a good many omissions, that Dr. Posner is to be congratulated on having brought out a really useful work.

F. M. P.

CHEESE-MITES.

British Tyroglyphidae. By Albert D. Michael, F.L.S., F.Z.S., F.R.M.S., &c. Vol. ii. (London: Printed for the Ray Society, 1903.)

THIS is a second volume only by date and binding; otherwise it is part and parcel of the first, completing the story with all the scientific skill in description and illustration, the critical acumen, and the due proportion of enlivening touches to which attention was directed in these columns two years ago. An annotated list of the principal known or supposed species, not hitherto recorded as British, is a valuable supplement, here thrown in as a free gift beyond the requirements of the title. An interesting addition to the group of cheese-mites is furnished by the new genus and species, *Fusacarus laminipes*, a little fusiform broad-legged acarid discovered by Mr. Michael in moles' nests, sometimes abundant, yet not present in every nest, and never observed upon the mole itself.

Among statements of economic importance may be noted the author's remarks on *Tyroglyphus longior*, Gervais. Of this he says.

"It seems to me to be found in almost all houses upon dried provisions, often swarming in enormous numbers. I have also found it most prolific on hay and fodder, often increasing in countless millions. I once had a sample of hay sent me from a large hay-stack on a first-class farm in Ireland; the whole stack had practically been destroyed by this Acarus; there were, weight for weight, as large quantities of Acari as of hay in the sample."

On the other hand he vindicates *Histiogaster entomophagus* (Laboulbène) from the reproach, conveyed in its specific name, of devastating entomological collections. Also he agrees with the French acarologists in being hard of belief that the mite which Riley and Planchon called *Tyroglyphus phylloxerae* was at all likely to benefit the French vine-growers by its importation. For one thing, in his opinion, France already possessed the mite in question under an earlier name,

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and for another, he holds that cheese-mites in general are not at all partial to feeding on insects until the insects are not only dead, but dried, in which condition the dreaded *Phylloxera* ceases to be a devastator of vineyards. But if Riley's mite does the wine-producer no essential good, *Carpoglyphus anonymus*, Haller, does the wine-vendor positive harm. Anything, indeed, might be expected of a creature so reprobate that it devours the gold size of the very cell in which it is being reared for scientific observation. But this species, which in very Irish fashion has been named "the nameless," further outrages sentiment by being, what the lower animals so seldom are, a set of little drunkards. They defy the great wine-merchants of Paris by increasing in immense quantities inside the wine bottles, "maintaining their position on the surface of the wine without getting drowned by standing on minute pieces of cork," and in this ideal home for inebriates drawing their nourishment from the wine.

Directly in his preface and incidentally elsewhere Mr. Michael directs attention to the unsatisfactory process by which chains are being riveted on zoologists in regard to nomenclature. His remarks are opportune. It may easily come to be supposed that the important compilation of "Das Tierreich" represents on this and some other questions a consensus of opinion. But that is contrary to the fact, the apparent consensus meaning nothing more than a (possibly very reluctant) concession to a supposed need for uniformity, by which the value of "Das Tierreich" itself is not a little likely to be seriously impaired. Moreover, the rules which appear to have been agreed on by the committee of the International Zoological Congress are themselves under more than one grave disadvantage. The report brought up to the highly representative meeting of that congress at Cambridge in 1898 was for some esoteric reason withdrawn from discussion. This opportunity being lost, a larger committee was appointed, but the rules appear to have been settled by only five of the members, Great Britain being left unrepresented at the critical time, through the withdrawal of two members and the absence of a third. After all, perhaps, it is consoling to reflect that rules can only find their ultimate sanction in the practice of the best writers, and work like Mr. Michael's helps one to maintain that British zoology is neither dead nor sleeping, and that it cannot in the long run be left out of account.

OUR BOOK SHELF.

Zoology: Descriptive and Practical. By Prof. Buel P. Colton. Part i. Descriptive. Pp. x+375; 201 figures. Price 4s. 6d. Part ii. Practical. Pp. xvii+204. Price 2s. (London: D. C. Heath and Co., 1904.)

THE author points out in an admirable preface that the study of natural history in schools should follow the seasons, and that animals should be studied in relation to their surroundings. "The study of the relations of animals to their surroundings is a constant investigation of cause," and the pupil has above all to inquire into the meanings of facts. But exercises in classification, in the detailed analysis of types, in

definition making, and so on, are also, he maintains, of great value. The book has been read critically by numerous teachers—some of whom are well known experts—so that it ought to be well-nigh faultless within its limits. The descriptive part begins with insects, leaving difficult groups like Protozoa and Coelentera to near the end; it is elementary in its mode of treatment, with refreshing breaths of the open air, admirably free from technicalities, and always clear. But the author has tried far too much, and his terseness is repeatedly gained at the expense of accuracy. We do not see the object of attempting a complete survey in a book like this, of dragging in sirenians and brachiopods—the whole show, in short—when the exigencies of space appear to have made it impossible to say about many classes anything worth reading. If the author had been less ambitious of completeness, his book would have been more useful. The practical part of the book, which includes a large variety of material, and mostly consists of simple directions and suggestive questions, is in our opinion a much stronger piece of work. The studies on insects, the crayfish, the earthworm, the turtle, the snake, the rabbit, and many more, considered both as intact living creatures and as objects for anatomical analysis, are admirably conceived and well worked out. The Socratic method is adhered to throughout, and the practical volume will be found very valuable both by teachers and students. It presupposes for the natural history lessons more time and more freedom than is usually allowed in Britain. It should also be noted that there are terse directions on several topics which are rarely alluded to in books on practical zoology, such as skinning birds and mounting insects. Our general impression is that Prof. Colton, who is evidently a skilful teacher, should have expanded and illustrated the *practical* part of his book, incorporating in it all that is personal and distinctive in the *descriptive* part.

J. A. T.

Among the Garden People. By Clara D. Pierson. Pp. viii+236; illustrated. (London: John Murray, 1904.) Price 5s.

Our American friends, if not actually ahead, are well up to our level in the matter of encouraging and protecting the native birds of gardens and plantations, and the author has therefore been well advised in arranging for an English edition of the work before us. She has been equally well advised in changing the original title of "Dooryard Stories" for the one this dainty little volume now bears, for few amongst us, we think, are aware that "dooryard" is American for "garden." The American title is, however, still retained in the page-headings.

The book is essentially one for juvenile readers, being written in the form of simply worded stories, in which the birds are made, so far as possible, to tell their own tale according to what may be supposed to be their own ideas. Despite a certain amount of confusion which is almost sure to arise from the misappropriation of the names of familiar English birds for totally different American species, it is certainly an important element in the natural history education of young people that they should be made to understand that the birds of distant lands differ markedly from those of their own, and, as the author observes, it may be a decided advantage to those who visit in mature years the New World to have already made some amount of acquaintance with its feathered denizens.

Not that this volume is by any means absolutely restricted to the birds of American gardens, for it tells us a good deal about some of their four-legged enemies, such as red squirrels and chipmunks. Some of the

American names, such as the latter, are explained in a short glossary, in which we are somewhat amused to find the raccoon described as "an American animal, allied to the bear family, but much smaller, and much hunted both for its flesh and its fur." Surely something a little more exact and more to the point could have been supplied by the author's naturalist friends.

The numerous "three-colour" plates are for the most part good and artistic representations of the species they portray, and the volume may be recommended as an attractive gift-book for young people.

R. L.

New Physical Geography. By Ralph S. Tarr, B.S., Professor of Dynamic Geology and Physical Geography at Cornell University. Pp. xvi+457. (New York: The Macmillan Company, 1904.) Price 1 dollar.

As Prof. Tarr says in his preface, the teaching of physical geography is still in its experimental stage. The publication of this volume, which is the third on the same subject by the same author, who now "does not flatter himself that he has produced the ideal," shows there is work yet to be done by teachers of geography. But whether this volume is ideal or not, it is certainly an excellent text-book of the subject. Prof. Tarr begins with a short and not altogether satisfactory chapter on the earth as a planet, and proceeds to a treatment of the lands of the globe. These chapters are followed by descriptions of atmospheric and oceanic phenomena, which are less extended than in the author's previous books, and by an account of the physiography of the United States. The volume concludes with chapters treating of life in its relation to the land, air, and ocean—the last one being called "Man and Nature." Several subjects usually included in books on physical geography are relegated to appendices, and among these may be mentioned: revolution of the earth, latitude and longitude, tides, magnetism, and meteorological instruments. There are 568 illustrations, most of which are of a striking and instructive character.

Quiet Hours with Nature. By Mrs. Brightwen. Illustrated by Theo. Carreras. Pp. xvi+271. (London: T. Fisher Unwin, 1904.) Price 5s.

MRS. BRIGHTWEN writes in a way that is sure to gain the attention of young people. Her sketches are in no sense formal scientific descriptions of the familiar animal and plant life of this country, but they are likely to arouse an interest in natural history and to lead readers to observe for themselves. The book shows clearly how much worth close inspection and study an English garden contains, and rightly indicates there are common phenomena which still remain unexplained. The book is well illustrated and deserves to be a favourite with boys and girls.

Le Monde des Fourmis. By Henri Coupin, Lauréat de l'Institut, &c. Pp. 160. (Paris: Delagrave.)

THIS is a small popular book relating to the habits, architecture, and intelligence of ants, and largely consists of extracts from the works of Huber, Forel, Lubbock, Moggridge, and other well known writers, chiefly French and English. The subject of the book cannot fail to interest those previously unacquainted with it, but it contains little that will not be familiar to everyone who has read any recent works on ants. It is very inferior to such a book as Ernest André's "Les Fourmis," published in 1885, but we believe that this has been out of print for some time. We may add that M. Coupin's book contains a few illustrations of a very inferior description.